

## PATENT ABSTRACTS OF JAPAN

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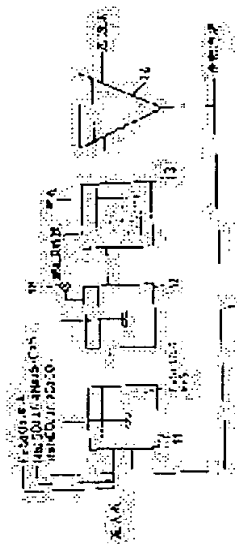
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**(54) METHOD AND APPARATUS FOR SIMULTANEOUS REMOVAL OF NITROGEN AND PHOSPHORUS****(57)Abstract:**

PURPOSE: To efficiently simultaneously remove nitrogen and phosphorus by injecting an iron thiosulfate solution in an anaerobic tank and supplying  $\text{NaHCO}_3$  or  $\text{CaCO}_3$  as a carbon source to bring about desulfurizing and denitrating reaction in a denitrification tank.

CONSTITUTION:  $\text{FeS}_2\text{O}_3$  (iron thiosulfate)  $\text{Na}_2\text{SO}_3$  or  $\text{Na}_2\text{S}$ ,  $\text{CaS}$   $\text{NaHCO}_3$  or  $\text{CaCO}_3$  is injected in an anaerobic tank 11. An iron ion is reacted with a phosphate ion to precipitate as iron phosphate. The water flowing out of the anaerobic tank 11 subsequently flows in a denitrification tank 12 and desulfurizing/ denitrification reaction using  $\text{S}_2\text{O}$  ion as an electron donor is generated by the action of desulfurizing/denitrifying bacteria. The water flowing out of the denitrifying tank 12 next flows in an aerobic tank 13 and ammonia in water is nitrated by the action of nitrating bacteria. The mixed liquid (nitrated liquid) of the aerobic tank is circulated and returned to the denitrification tank 12 to be again denitrified. The outflow water of the aerobic tank flows in a sedimentation tank 14 to be subjected to solid-liquid separation and the supernatant water is discharged out of the system and a part of the sedimented sludge is returned to the anaerobic tank 11 through a return sludge part 15.

**LEGAL STATUS**

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